What is claimed is:

1. A magnetic resistance device comprising: respectively and independently forming a pair of magnetic tunnel junction structures, composed by sandwiching a barrier film between a lower magnetic layer and upper magnetic layer, on a conductive layer provided continuously on a substrate, and respectively and independently forming an upper electrode on each upper magnetic layer of said pair of magnetic tunnel junction structures.

2. A magnetic resistance device according to claim 1 wherein, stationary magnetizing layers for using each of said lower magnetic layers and stationary layers are respectively and independently provided separately between each said conductive layer and each lower magnetic layer of said pair of magnetic tunnel junction structures.

3. A magnetic resistance device according to claim 1 wherein, stationary magnetizing layers for using each of said lower magnetic layers as stationary layers are respectively provided continuously and in common between each of said conductive layers and each lower magnetic layer of said pair of magnetic tunnel junction structures.

4. A magnetic resistance device according to claim 1 wherein, stationary magnetizing layers for using each of said

upper magnetic layers as stationary layers are respectively and independently provided separately between each of said upper magnetic layers and each of said independent upper electrodes of said pair of magnetic tunnel junction structures.

5. A magnetic resistance device according to claim 1 wherein, said pair of magnetic tunnel junction structures is formed by ion beam etching on said conductive layer.

6. A magnetic resistance device comprised by connecting in series on a substrate a pair of magnetic tunnel junction structures composed by sandwiching a barrier film between a lower magnetic layer and an upper magnetic layer wherein, together with respectively forming the shape of each of said magnetic tunnel junction structures when viewed in a plan view as a rectangle comprised of short sides and long sides, each long side of each of said magnetic tunnel junction structures is arranged in parallel and mutually opposing.

7. A magnetic resistance device according to claim 6 wherein, each of the lower magnetic layers of said pair of magnetic tunnel junction structures is electrically connected on said substrate.

8. A magnetic resistance device comprising arranging linearly and connecting in series on a substrate a plurality

of magnetic tunnel junction structures composed by sandwiching a barrier film between a lower magnetic layer and an upper magnetic layer wherein, together with respectively forming the shape of each of said magnetic tunnel junction structures when viewed in a plan view as a rectangle, the long sides of said rectangle are perpendicular to the direction of orientation of said plurality of magnetic tunnel junction structures.

9. A magnetic resistance device according to claim 8 wherein, said plurality of magnetic tunnel junction structures are connected in series by respectively mutually and electrically connecting in sequence each upper magnetic layer and each lower magnetic layer of adjacent pairs of magnetic tunnel junction structures.

10. A magnetic resistance device according to claim 8 wherein, said plurality of magnetic tunnel junction structures are connected in series by electrically connecting in sequence the lower magnetic layer of each magnetic tunnel junction structure with the upper magnetic layer of the adjacent magnetic tunnel junction structure moving in a single direction.

11. A magnetic resistance device comprised by connecting in series on a substrate a plurality of magnetic tunnel junction structures composed by sandwiching a barrier film between a lower magnetic layer and an upper magnetic layer wherein,

together with respectively forming the shape of each of said magnetic tunnel junction structures when viewed in a plan view as a rectangle comprised of long sides and short sides, and making each long side of each pair of magnetic tunnel junction structures mutually parallel and mutually opposed, said plurality of magnetic tunnel junction structures are arranged linearly in the direction of each long side and in two rows in the direction of each short side.

12. A magnetic resistance device according to claim 11 wherein, said plurality of magnetic tunnel junction structures are connected in series by respectively electrically connecting each lower magnetic layer of each pair of magnetic tunnel junction structures in which said long sides are mutually opposed, and electrically connecting every other upper magnetic layer of each adjacent magnetic tunnel structure for every said row.

13. A magnetic resistance device comprising arranging on a substrate a plurality of magnetic tunnel junction structures composed by sandwiching a barrier film between a lower magnetic layer and an upper magnetic layer wherein, said plurality of magnetic tunnel junction structures are connected in series by arranging a plurality of said plurality of magnetic tunnel junction structures longitudinally and horizontally each in the form of a matrix.

14. A magnetic resistance device according to claim 13 wherein, said plurality of magnetic tunnel junction structures are connected in series by linearly and electrically connecting in sequence said plurality of magnetic tunnel junction structures linearly in the longitudinal or horizontal direction of said matrix, and electrically connecting so as to turn around at both ends of said matrix.

15. A magnetic resistance device according to claim 13 wherein, together with respectively forming each shape of said plurality of magnetic tunnel junction structures when viewed in a plan view as a rectangle, the shape of a matrix when viewed in a plan view is also formed as a rectangle by said plurality of magnetic tunnel junction structures, and the direction of the long sides of the rectangle of each of said magnetic tunnel junction structures coincides with the direction of the long sides of the rectangle of said matrix.